

EPA Staff Evaluation Report
Regarding Applications for NPDES Permits
for Ten U. S. Fish and Wildlife Service
National Fish Hatcheries
State of Washington

Background

1. The U.S. Fish and Wildlife Service operates ten fish hatcheries and/or farms in the State of Washington. The names and permit numbers follow:

<u>Name</u>	<u>EPA Permit Number</u>
- Little White Salmon National Fish Hatchery	WA-000021-3
Leavenworth National Fish Hatchery	WA-000190-2
- Abernathy Salmon Cultural Laboratory	WA-000050-1
- Quinault National Fish Hatchery	WA-000191-1
- Spring Creek National Fish Hatchery	WA-000022-1
- Entiat National Fish Hatchery	WA-000188-1
- Willard National Fish Hatchery	WA-000019-1
- Quilcene National Fish Hatchery	WA-000107-2
Winthrop National Fish Hatchery	WA-000259-3
Carson National Fish Hatchery	WA-000020-5

2. In general, operation of the above facilities results into three types of discharges. The discharges are from (1) the adult ladder and holding ponds, (2) the egg hatching facilities, and (3) the rearing ponds or raceways. In general, water used at these hatcheries is discharged after being used only one time, however, two of the hatcheries recycle some of their water after passing it through a reconditioning unit.

Discharges

Maximum discharges from the three portions of the operations usually occur from the month of October through the month of May. Minimum discharges usually occur from the month of June through the month of August. This is because during the fall, winter, and spring months, all portions of the facilities are being operated, whereas during the summer months the only facilities being operated are the ladder and holding ponds for adults and raceways for hold-overs (spring Chinook salmon and in some cases, rainbow or steelhead trout).

2.

Effluent Limitations and Quality Requirements

1. The effect on water quality characteristics from the hatchery egg troughs is insignificant with the exception of the short period of time when the eggs are hatching. At this time, no adverse effect to water quality has been noted regarding dissolved oxygen, pH, BOD or COD.

2. The effluent characteristics from the hatching troughs or tanks do undergo a measureable degradation when these facilities are used for primary rearing spring Chinook salmon and steelhead trout.

The general increase of certain characteristics in the effluents from the hatching troughs or tanks have been measured as follows:

<u>Parameter</u>	<u>Discharge Concentration Mg/l</u>
Biochemical Oxygen Demand (BOD)	5
Suspended Solids	7

3. The bulk of the adverse effect from fish hatcheries on receiving water quality originates from the outside raceways and/or rearing ponds. The sources of these water polluting materials are unused feed, metabolic products, fecal matter, and pathogenic organisms.

Discharges from Ponds or Raceways Characteristics

1. Initial Limitations

For daily limitations until June 30, 1977, the following formulas were applied.

Daily average suspended solids (lb/day)	=	$\frac{2.6 \times \text{maximum pounds of fish on hand}}{100}$
Daily average suspended solids kg/day	=	$\frac{2.6 \times \text{maximum kg of fish on hand}}{100}$
Daily maximum suspended solids (lb/day)	=	$\frac{3.4 \times \text{maximum pounds of fish on hand}}{100}$
Daily maximum suspended solids kg/day	=	$\frac{3.4 \times \text{maximum kg of fish on hand}}{100}$

3.

2. Final Limitations

Beginning July 1, 1977 and lasting through the expiration date of the permit, the following formulas apply:

$$\text{Daily average suspended solids (lb/day)} = \frac{2.2 \times \text{maximum pounds of fish on hand}}{100}$$

$$\text{Daily average suspended solids kg/day} = \frac{2.2 \times \text{maximum kg of fish on hand}}{100}$$

$$\text{Daily maximum suspended solids (lb/day)} = \frac{2.9 \times \text{maximum pounds of fish on hand}}{100}$$

$$\text{Daily maximum suspended solids kg/day} = \frac{2.9 \times \text{maximum kg of fish on hand}}{100}$$

Evaluations

The draft effluent guidelines for salmonid hatcheries, preserves, and farms dated April 1973, have proposed effluent limitations based upon the best practicable control technology currently available (BPCTCA) for salmonid cultural facilities. The BPCTCA limitations must be met prior to July 1, 1977. The present practice of discharging hatchery effluent without treatment is not adequate control and does not meet BPCTCA levels of treatment. To meet BPCTCA it will be necessary to treat the used waters. This can be accomplished by the settling of the raceway cleaning flow, or vacuum cleaning of the raceway. This technology will eliminate slug discharges of pollutants associated with cleaning wastes and in terms of total pollutant load will remove 15 percent of the BOD and suspended solids.

Recommendations

1. It is proposed that the applicant provide treatment and control to meet effluent limitations representing best practicable control technology by June 30, 1977. The initial effluent limits are based on data described in the permit application.

2. It is recommended that a five year permit be issued to the above named ten U.S. Fish and Wildlife Service fish hatcheries/farms with an expiration date of September 30, 1979.